Vol. 3 No. 1 January 20, 2000

HEAT ISLAND REDUCTION INITIATIVE DOE EPA

HIRI NEWS

Salt Lake City plans to conduct energy savings roofing demonstration projects; Sacramento presents heat islands at the RCMA meeting

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Urban Heat Island Pilot Project and Cool Community updates

Salt Lake City

Conferences

Camille Russell (Utah Office of Energy Services) gave a presentation at the Single-Ply Roofing Institute (SPRI) Conference held in January in St. Petersburg, Florida. Camille spoke to the SPRI technical committee about heat islands and the Cool Communities Program. Attendees expressed an interest in marketing cool roofing within their own companies. Camille noted that the brochure developed by National Coatings, with the help of Lisa Gartland (PositivEnergy), was a good marketing template.

Camille also attended the Cool Roof Rating Council (CRRC) Conference held in Salt Lake City. She participates on the CRRC board, which has initiated in-situ reflectiveness field testing in Salt Lake City. (All prior testing on roofing products had been in the laboratory.) The CRRC tested roofing on the Delta Center, a new building with white membrane roofing. In mid-June, as a part of the CRRC's next meeting in Atlanta, the CRRC will also conduct field testing on commercial roofs. The council hopes to test roofing that has been in place for a few years, coatings, and black membranes. To measure reflectiveness, the CRRC uses DNs equipment.

Funding

The CRRC is applying to the Partnership for Advancing Technology in Housing (PATH) Program for funding for laboratory testing of residential shingle properties. The proposal is due in early February.

The Utah Office of Energy Services has funds remaining from a NASA grant for land cover analyses. The Office of Energy Services is now contracting with Beth Murphy (Geoscience and Energy Institute, University of Utah), who is delineating thermal data for Salt Lake City and its neighborhood councils. Beth is delineating the data by geographical/political boundaries, and further into municipalities and neighborhood councils. The Office of Energy Services will provide each municipality or neighborhood council with that area's data to analyze land cover (tree cover, pavement, roof cover, parking lots, etc.). The Office of Energy Services is applying for funding to expand the study area.

Demonstration projects

Demonstration projects

Salt Lake City was able to obtain some funding for demonstration projects. The Utah Office of Energy Services is funding the incremental costs of implementing heat island reduction measures (e.g., changing an asphalt parking lot to concrete, changing a black membrane to a white membrane). The Office of Energy Services recently issued a $10,000 contract with TreeUtah to plant trees in hot spots in downtown Salt Lake City. The Office also contracted with Tooele, a city west of Salt Lake City, to apply white coating to a new roof.

Another demonstration project may involve two elementary schools in Salt Lake City (each 10 to 15 years old). The Office of Energy Services would pay for the roofs of these schools to be re-done in a white membrane. Camille hopes to conduct testing on the interior and exterior of the buildings. Another potential demonstration project involves changing an asphalt parking lot of a temple in Salt Lake Valley to white membrane, and applying a coating to the black membrane roofing to determine if there is an overall reduction in temperatures around the building.

Virginia noted that LBNL is looking to monitor buildings around the country. Currently, LBNL is testing a building in Austin, Texas. LBNL will study past data, change the roofing in February, and monitor energy savings for the next 7 to 8 months.

Salt Lake City hopes to host a conference on parking lots in the spring. Lisa mentioned that Sacramento received funding for a similar conference. Virginia suggested Camille and Lisa collaborate on this issue to make better use of resources and to avoid duplication.

Sacramento

Conferences

On January 17, 2000, Lisa attended the Roof Coating Manufacturers Association (RCMA) annual meeting. She gave an hour presentation on the Cool Communities Program, roofing; and spoke about paving, and trees and vegetation.

Proposal

Lisa is re-submitting a residential roof proposal to the California Energy Commission. The project proposal involves testing three or four residential shingles that are 40 percent or more reflective on buildings in Sacramento.

Cool pavements research

Lisa visited the University of California/Berkeley and the University of Nevada/Reno to determine what research is being done on cool pavements and coatings. Berkeley will publish a paper in the spring on asphalt coatings and their affect on temperature. Lisa said that many of the lighter, cooler asphalt coatings have not been tested yet. Peter Sebaaly at the University of Nevada/Reno showed Lisa a test patch of black coating which caused pavement to crack. The coating was more brittle than the asphalt underneath. Peter said that additional tests need to be done on properties other than temperature (e.g., brittleness). Peter said a week of laboratory tests should be sufficient to test the properties of a coating.

Lisa also met with Harry Tormey, who produces ready-mix concrete in Texas. She encouraged him to start a cool pavings council similar to the CRRC.

NASA

Maury Estes (NASA) stated that NASA conducted an urban fabric analysis of the commercial downtown Sacramento area and some of the surrounding residential development. NASA ran temperature profiles on a geographical area; and then further dissected the area into basic land cover areas (e.g., grass, forest, bare soil, and impervious surface or developed areas). Virginia noted that LBNL conducted a similar urban fabric analysis using aerial photographs of Sacramento and Salt Lake City. Virginia stressed the importance of comparing the results of the LBNL and NASA urban fabric studies.

NASA plans to conduct land cover analyses of all the pilot cities by planning districts (also known as neighborhood planning units or councils).

Proposals

NASA hopes to receive Department of Transportation (DOT) funding for remote sensing. This work would study major transportation quarters and demonstrate how remote sensing can be used to do environmental impact assessments.

NASA was not awarded EPA Challenge Grant funds for demonstration sites but may re-submit the proposal.

NASA is also waiting to hear back on proposals for a demonstration project on the Atlanta Home Depot building and for a study in Houston.

Conferences

Maury will give a presentation on heat island reduction initiatives at the Alabama Department of Transportation (DOT) conference in February. The Alabama DOT is interested in working with NASA and EPA on air quality problems in Birmingham.

Maury will also present heat island reduction information at the Urban Foresters Conference in Louisiana in February.

Demonstration projects

Maury and Lucie Griggs (American Forests) met with MARTA, Atlanta's rapid transit agency. MARTA is interested in working on demonstration sites involving re-roofing and parking lot re-surfacing. Maury noted that the Alabama DOT is less likely to use tree shading due to the increased maintenance and watering issues. Lisa will try to send Maury an article on how tree shading allows pavement to last longer. Camille also noted that Salt Lake City determined from field studies that shaded asphalt surfaces are always cooler than any other surface material.

Maury asked the coordinators if they were familiar with EPA's Environmental Monitoring for Public Access and Community Tracking (EMPACT) Program (www.epa.gov/empact). This program provides the public with up-to-date environmental information available in the largest metropolitan areas. EMPACT awards grants for locally sponsored pilot projects in cities listed under the EMPACT program. EMPACT metro areas include cities such as Atlanta, Houston, Sacramento, and Salt Lake City. Maury and Lucie are talking to local governments in Atlanta to see if they are interested in applying for grant money.

March air quality workshop

Virginia has been working on organizing the workshop to be held March 6-7, 2000, in Washington, DC to discuss air quality modeling studies. She has sent out the workshop agenda and is waiting to receive RSVPs. Haider Taha (LBNL) will present results of the pilot city studies, and Sharon Douglas (ICF Consulting) will present information on a recent study completed for the northeastern United States. The rest of the workshop will focus on a plan to streamline the modeling process. Virginia noted that there may be additional discussions (other than what is scheduled on the agenda) held after the workshop.

With the help of an intern, Virginia plans to continue working on developing the HIRI website.

Next steps

- Lisa will send Maury an article on tree shading.

The next conference call in February is TBD. Stay tuned for the date, call-in number, and access code.